

CLAIMS

What is claimed is:

1        1. A hard disk drive, comprising:

2        a base plate;

3        a spindle motor coupled to said base plate;

4        a disk coupled to said spindle motor;

5        an actuator arm mounted to said base plate;

6        a voice coil motor coupled to said actuator arm;

7        a head coupled to said actuator arm;

8        a cover plate attached to said base plate to create an  
9 internal cavity that contains said head;

10       a heater located within said internal cavity;

11       a temperature sensor that can sense a temperature of  
12 said internal cavity; and,

13       a control circuit to control said heater to maintain a  
14 temperature of internal cavity to be no less than a  
15 threshold temperature.

1       2. The hard disk drive of claim 1, wherein said

2 control circuit includes an amplifier coupled to said

3 heater and a comparator coupled to said amplifier and said  
4 temperature sensor.

1 3. The hard disk drive of claim 1, wherein said heater  
2 is coupled to said base plate.

1 4. The hard disk drive of claim 2, wherein said  
2 control circuit includes a switch coupled to said  
3 comparator and said amplifier.

4 5. The hard disk drive of claim 1, wherein the  
5 threshold temperature is approximately 10-15°C.

6 6. The hard disk drive of claim 1, further comprising  
7 a register that stores the threshold value.

8 7. A hard disk drive, comprising:  
9 a base plate;  
10 a spindle motor coupled to said base plate;  
a disk coupled to said spindle motor;  
an actuator arm mounted to said base plate;  
a voice coil motor coupled to said actuator arm;

11 a head coupled to said actuator arm and said disk;  
12 a cover plate attached to said base plate to create an  
13 internal cavity that contains said head;  
14 heater means for heating said internal cavity;  
15 temperature sensor means for sensing a temperature of  
16 said internal cavity; and,  
17 control circuit means for controlling said heater to  
18 maintain a temperature of said internal cavity to be no  
19 less than a threshold temperature.

20  
21 8. The hard disk drive of claim 7, wherein said  
22 control circuit means includes an amplifier coupled to said  
23 heater and a comparator coupled to said amplifier and said  
24 temperature sensor means.

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26 9. The hard disk drive of claim 7, wherein said heater  
27 means is coupled to said base plate.

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29 10. The hard disk drive of claim 8, wherein said  
30 control circuit means includes a switch coupled to said  
31 comparator and said amplifier.

1           11. The hard disk drive of claim 7, wherein the  
2 threshold temperature is approximately 10-15°C.

3           12. The hard disk drive of claim 7, wherein said  
4 control circuit means includes a register that stores the  
5 threshold value.

6           13. A method for controlling a temperature of a hard  
7 disk drive internal cavity, comprising:

8               sensing a temperature of a hard disk drive internal  
9 cavity; and,

10            activating a heater if the sensed temperature is less  
11 than a threshold value.

1           14. The method of claim 13, deactivating the heater if  
2 the sensed temperature is at least the threshold value.

1           15. The method of claim 13, wherein the sensed  
2 temperature is compared with a threshold value that is  
3 stored in a register.

1        16. The method of claim 13, using exist temperature  
2 sensing method in pre-amplifier or read/write chip.

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